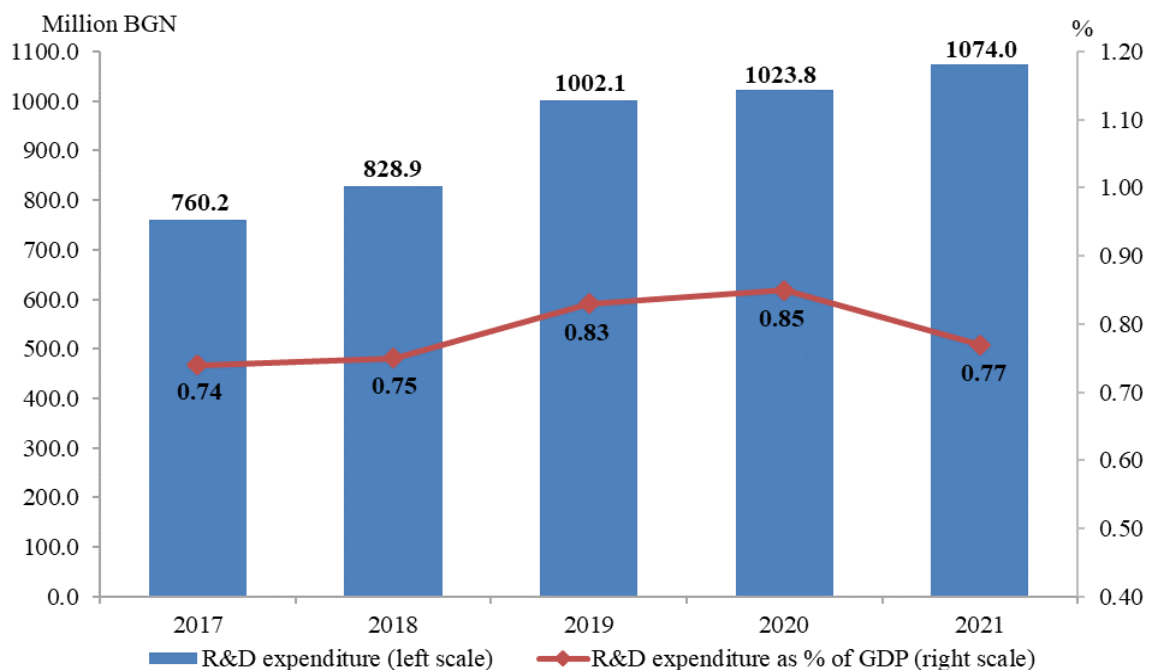


RESEARCH AND DEVELOPMENT ACTIVITY IN 2021 (PRELIMINARY DATA)

In 2021, the total amount of expenditure on research and development activity (R&D) was 1 074.0 million BGN, which was 4.9% more than the previous year. The annual growth tendency is retained for the period 2017 - 2021.

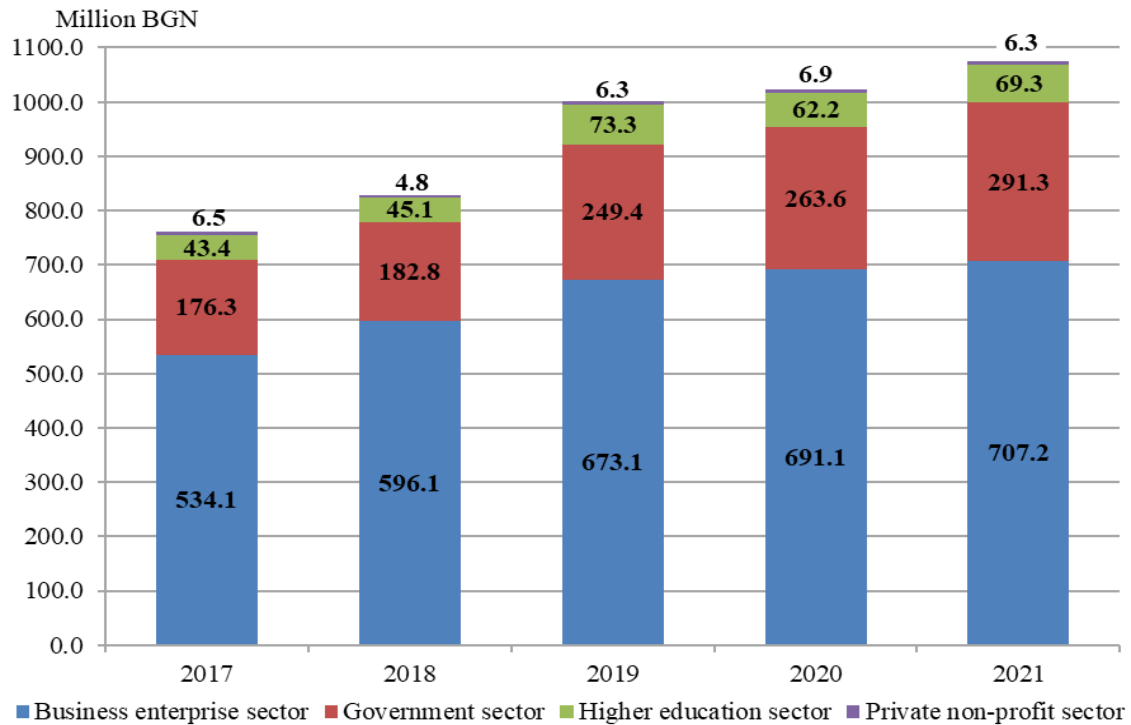
R&D intensity (R&D expenditure as a percentage of the gross domestic product) amounted to 0.77% and it was 0.08 percentage points lower than in 2020.

Figure 1. R&D expenditure



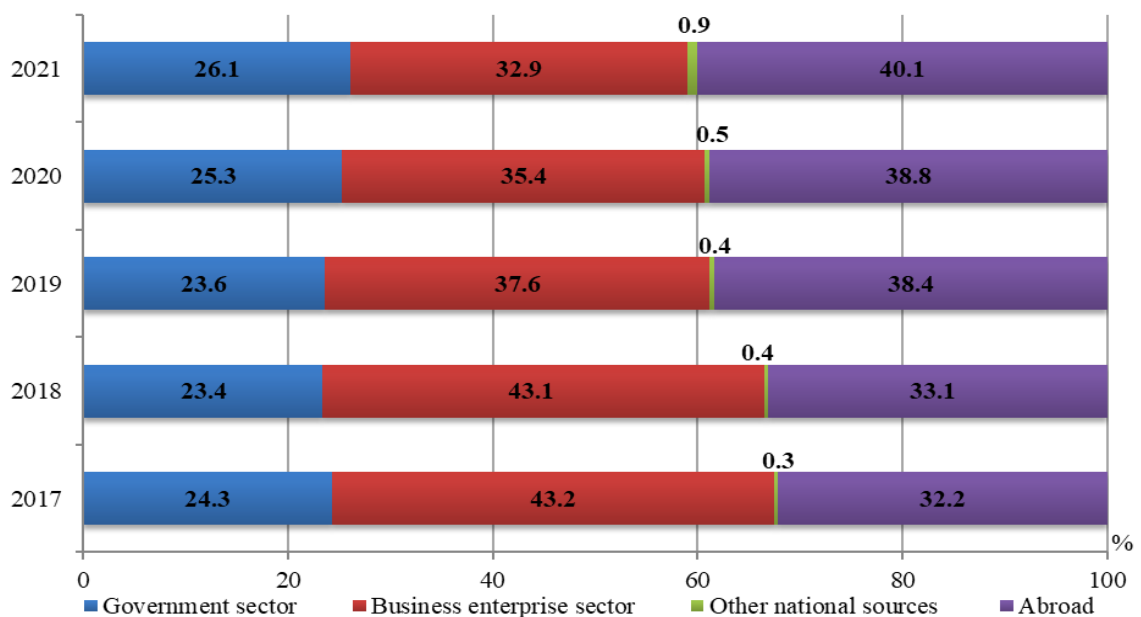
The business enterprise sector was the largest of the four institutional sectors of R&D performance, with a share of 65.8% of the total R&D expenditure in 2021. It was followed by the government sector, whose research institutes and organizations formed 27.1% of the total R&D expenditure. The spending on R&D by tertiary schools and university hospitals amounted to 6.5% and, respectively, by the non-profit organizations - 0.6% of total R&D expenditure.

Figure 2. R&D expenditure by institutional sectors



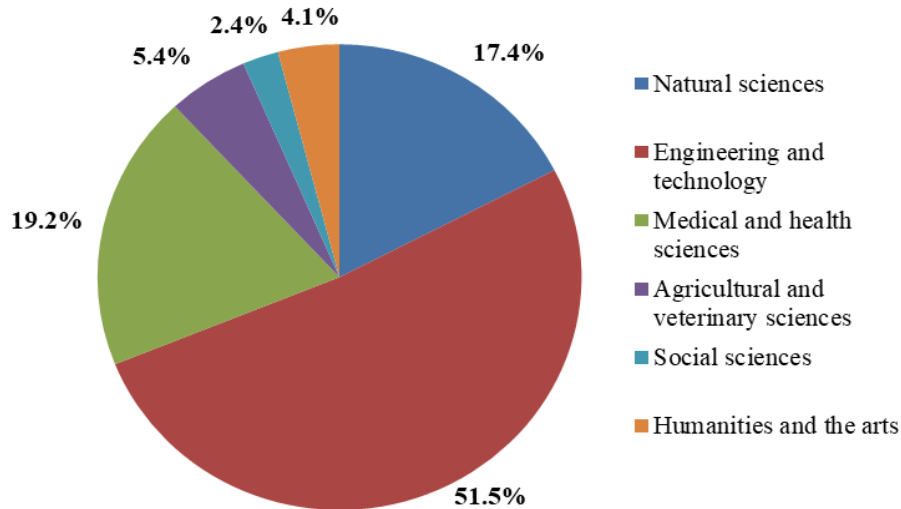
The R&D activity was financed from the state budget, businesses, other national sources and from abroad (Figure 3). In 2021, the largest was the share of foreign sources of funds for R&D - 40.1%. The business enterprise sector financed 32.9% of the total R&D expenditure, and the state budget - 26.1%.

Figure 3. Structure of R&D expenditure by source of funds



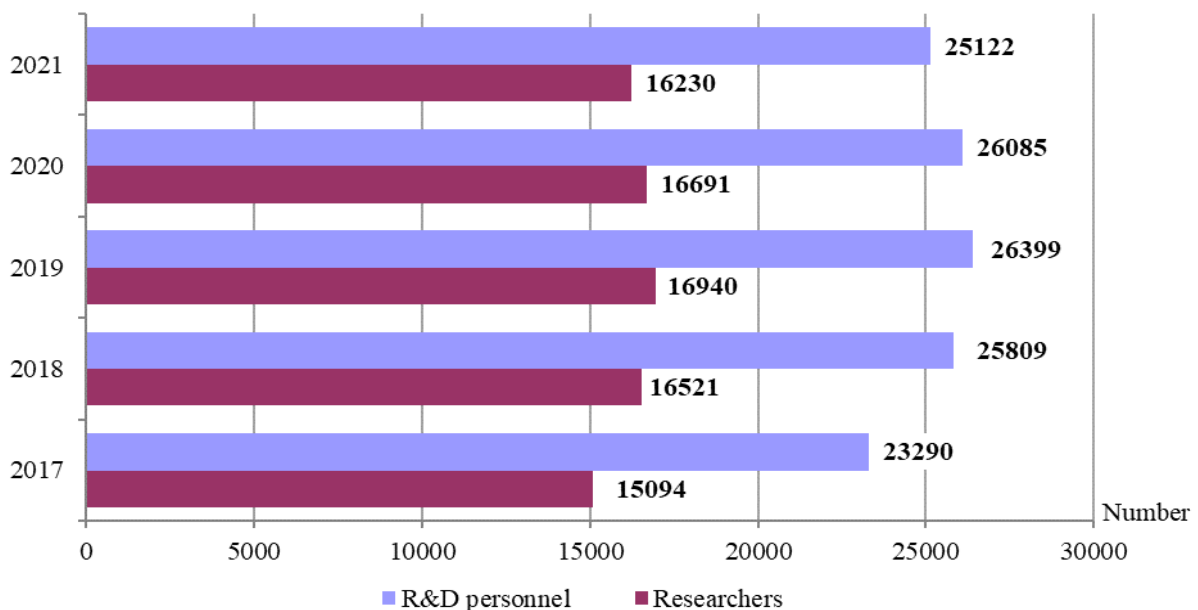
In the structure of R&D expenditure by fields of science in 2021, as in the previous year, the highest share belonged to the R&D expenditure in technical sciences - 51.5% (553.2 million BGN), followed by medical and health sciences with a share of 19.2% (206.7 million BGN) and the natural sciences - 17.4% (187.0 million BGN).

Figure 4. Structure of R&D expenditure by fields of science, 2021



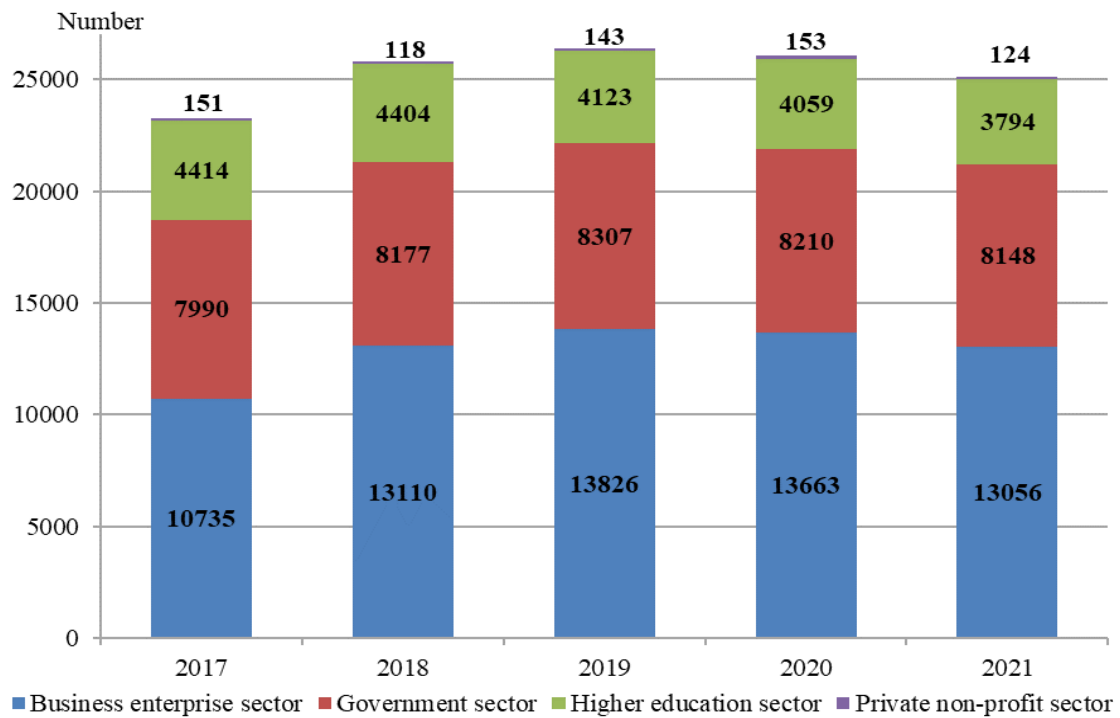
In 2021, the personnel engaged in research and development activity amounted to 25 122 persons (in full-time equivalent), which was 3.7% less than the previous year (Figure 5). The share of women in total R&D personnel was 47.5%. The number of researchers in full-time equivalent was 16 230 persons, which was 2.8% less compared to 2020.

Figure 5. R&D personnel (in full-time equivalent)



In 2021, the main part of R&D personnel was concentrated in companies and research institutes in the business enterprise sector - 52.0% of the total R&D personnel (in full-time equivalent), or 13 056 persons. In organizations and institutions of the government sector, 8 148 persons were involved in R&D activity, which constituted 32.4% of the total personnel engaged in R&D in 2021. In the higher education sector, 3 794 persons were carrying out research and development, with a relative share of 15.1%.

Figure 6. R&D personnel (in full-time equivalent) by institutional sectors



Methodological notes

Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge - including knowledge of humankind, culture and society - and to devise new applications of available knowledge. R&D activity covers basic research, applied research and experimental development.

The indicator 'R&D expenditure' is defined as all expenditure for R&D performed within a statistical unit, whatever the source of funds. The R&D expenditure comprises current costs and expenditure for acquisition of tangible and intangible fixed assets on R&D.

The indicator 'R&D personnel' measures the human resources going directly into R&D activity, responsible for the creation, application and dissemination of new knowledge. R&D personnel include all persons engaged directly in R&D, as well as those providing direct support to R&D (R&D managers, administrators, technicians and clerical staff). R&D personnel comprise researchers and other R&D personnel. Personnel in full-time equivalent (FTE) are calculated on the basis of working time spent on R&D activity during the reference year.

According to the methodological manual 'Frascati' (Guidelines for Collecting and Reporting Data on Research and Experimental Development - Frascati Manual, OECD, 2015), adopted by Eurostat, R&D expenditure and R&D personnel are distributed in four institutional sectors:

- Business enterprise sector - includes all firms, organizations and institutions whose primary activity is production of market goods and services (other than those included in Higher education sector);
- Government sector - comprises general administrations of central or state government, which furnish but do not sell common services to satisfy the individual and collective needs of society and which are predominantly budgetary financed (other than those included in Higher education sector);
- Higher education sector - includes all universities, colleges, other institutions of post-secondary education, research and development sectors of higher education institutions and university hospitals;
- Private non-profit sector - includes foundations, associations, etc. providing non-market services.

More information and data from the survey on R&D activity can be found at the NSI's website (<https://www.nsi.bg/en/node/6745>) and in Information System Infostat (https://infostat.nsi.bg/infostat/pages/module.jsf?x_2=88&lang=en).